details concerning the various peoples he met with. The zoologist and botanist will also find much to interest them. Not only does he bring certain information on the Lob-Nor, which is little better than a marsh, apparently drying up, but also makes an important contribution to our knowledge of the great mountain plateau which separates India from Central Asia. The Lob-Nor basin forms the foot of the Kuen-luen and of the great plateau which stretches from the plains of India over the Himalayas, the Karakorum, the highlands of Khor, in an unbroken sweep to the basin mentioned. Close by the Lob-Nor this mountain rises like a wall out of the low plain, some of the lowest valleys having a height of 10,000 feet above the sea. From this northern slope on the Lob-Nor, at about 60° W. long., the plateau stretches away south, for 13° (850 miles) to its southern slope on the Indian plain. At the meeting, on February 20, of the Russian Geographical Society the Secretary read a letter from Col. Prjwalsky, dated Fort Zaisan, January 11. The traveller said that, after having seen the impossibility of penetrating into Tibet *viâ* Lob-Nor, he was compelled to try the indirect route *viâ* Guchen and Hami, whence he proposed to go south to Tsandam and to Hlassa, crossing the sources of the Blue River. Thus, he left Kuldja on September 9, and reached Guchen. As along the whole of the route to Guchen, which passes through the towns Shikho and Manas, there were Chinese troops, as also many *champans* (convicts condemned to hard labour), Col. Prjwalsky followed another route, viz., to Lake Ebi-nor, thence north to the Saur Mountains, and thence to Guchen, along the route followed in 1875 by Col. Sosnovsky. Thus, he reached Guchen about the beginning of November, but here a serious illness compelled him to return to Zaisan, which he reached on January 13. A later telegram announced that the indefatigable traveller had recovered and that he was again on his way to Tibet.

MONGOLIA AND SIBERIA.—At the same meeting a letter from the traveller Potanin dated Bjisk, January 14, stating that he had arrived at the end of his Mongolian journey, after obtaining many hypsometrical and topographical data, as well as making rich botanical, zoological, and mineralogical collections. The Secretary of the Society gave a review of the activity of the Siberian department. Two expeditions were sent out by this department during the past year, one, which will be absent for several years, under the leadership of M. Czerski to investigate the shores of Lake Baikal geologically, the other conducted by M. Agapidin, to examine the flora of the district of Balagansk in the government of Irkutsk.

NEW GUINEA.—The Rev. S. Macfarlane has just sent home a report of a voyage which he made towards the close of last year from Murray Island to the east end of New Guinea, and in the course of which he visited several places previously unknown. He mentions having gone on shore near Killerton Point, not far from East Cape, where he found himself unable to communicate with the people except by signs, for they could not understand any of the dialects spoken at Teste Island, Port Moresby, and Murray Island, nor the Eastern and Western Polynesian languages, though upon inquiring the names of things, Mr. Macfarlane's companion thought he detected a resemblance to the Raratongan. The locality visited not suiting their purposes, the party went six or seven miles further to the eastward, and landed at the mouth of a river or mountain stream, where the hills slope down to within a short distance of the beach, and behind the village there is a well-wooded, fertile, and lovely valley. Mr. Macfarlane describes the neighbourhood as thickly populated, though the people are scattered in small villages within hailing distance of each other. Speaking generally, he says that the country about the east-end of New Guinea has a totally different appearance from that in the vicinity of Port Moresby, and the contrast was very striking. The former looked lovely and luxuriant, like the South Sea Islands, whilst the latter had a barren, brown, parched appearance, as if two days' sail had brought the party into a new country in quite a different latitude. We hear that Mr. Andrew Goldie, to whose gold discoveries in New Guinea we have before alluded, has sent home to the Earl of Glasgow an account of his recent explorations, accompanied by a sketch map and several drawings. At Mr. Goldie's request, his Lordship has handed the papers to the Geographical Society, and they will probably be read at one of the meetings during the present session.

LAKE NYASSA REGION.—A paper was read at Monday' meeting of the Royal Geographical Society, by Mr. H. B. Cotterill, "On the Nyassa, and a Journey from the North-East to Zanzibar." In August last he met Capt. Elton and some friends at the south end of the lake, and ran up the west coast. They were detained some days under Mount Chombi, which he ascended, and found to be about 4,000 feet above the lake. The high land on the west of the lake was found to trend off in a north-westerly direction. They at last made a start with about fifty men. Their route crossed the Chombaka River. The whole of the country was covered with groves of banana They procured other carriers and crossed the Chombaka Valley, crossing the river several times and passing two very beautiful little lakes. In crossing the Chombaka for the third time at a point where it flowed through a very deep ravine, they struck more towards the north. They found stretching away to the east and south-east a great plain bounded in the far distance by a towering range of mountains that evidently ran up from the eastern side of the Nyassa towards the north-west. The native name for these mountains and the surrounding country is Kondi. They had been gradually ascending since they left Nyassa, and when they reached Mazote's, they were at an elevation of about 6,000 feet above the sea. It was decided that some of them should push on to Mereri's Town. So Capt Elton and he and another started off, and having crossed the Kondi Range, they found themselves on a great plateau, 7,000 feet high, called Uwanji, a splendid cattle country, watered by many streams. Crossing the Makesumbi River, they found themselves in an undulating country, covered with thick bush. There Capt. Elton began to break down, and at South Ushekhe breathed his last. They then had to traverse some 350 miles of the Ujiji caravan route, and on the last day of February reached Zanzibar.

INDO-CHINA.—Dr. G. Barrion, a French naval surgeon is about to undertake an exploring journey to the Indo-Chinese peninsula.

MR. STANLEY has announced to the Paris Geographical Society that he will visit Paris in June, before his departure for America, to receive the medal the Society has awarded him.

NOTES

ROBERT JULIUS V. MAYER, whose name is so intimately associated with the mechanical theory of heat, died at his native town, Heilbronn, on the 21st inst., in his sixty-fourth year. We can only intimate the event this week, but hope next week to be able to speak in detail of Mayer's life and work.

IN connection with our article on Harvey in this number, we may remind our readers that for some time a movement has been on foot for the erection of a statue to Harvey in his native town, Folkestone. Only 800*l*., half the sum requisite, has been obtained, and we are sure many of our readers, on being made aware of the deficiency, will be glad to help to fill it up. Donations may be sent to the hon. treasurers of the fund, Sir George Burrows and Mr. Prescott Hewett, or to the hon. secretary, Mr. George Eastes, M.B., 69, Connaught Street, Hyde Park Square, W.

A great banquet, under the auspices of the College of Physicians, to be held on the day of the Harveian oration, is also talked of, but judging by the apathy shown generally on the subject of Harvey's tercentenary, it is not very probable it will come off. How is it that we take so little trouble here to keep alive the memory of our great dead?

We notice the death of Prof. A. Lamy at Paris on the 20th inst. For a number of years he has occupied the Chair of Industrial Chemistry at the École Centrale. As an investigator his name is chiefly known in connection with the metal thallium. Very shortly after the detection of its spectrum by Mr. Crookes in 1861, he observed the same phenomenon in the lead works at Lille; and his isolation of the metal and descriptions of its properties followed so closely on the announcements of the English chemist that the question of priority was vigorously discussed for some time, until finally decided against him. Contemporaneously with Mr. Crookes he submitted the new element to a careful examination, and it is to him we owe the first determination of the atomic weight 204, the discoveries of the poisonous properties, of the close relations with the alkaline group, of the remarkable thallium alcohols, and the preparation of thallium glass. In 1869 Lamy invented the two valuable pyrometers associated with his name, the one based on the dissociation-tension of calcium-carbonate for temperatures above 800°, and the second containing instead of carbonate the compound $CaCl_2,8NH_3$ for temperatures below 42°. In physics he studied the electric properties of sodium and potassium, and was the first to produce induction currents by means of terrestrial magnetism.

The death is announced of Michel-Charles Durieu de Maissonneuve, on February 20, aged eighty-two. He was honorary director of the Gardens of Bordeaux. As member of the Scientific Commission of Algeria he was known to botanists for his researches in the flora of that country.

We regret to announce the death of Prof. Gustav Willmanns of Strassburg University, well known through his African explorations and discoveries. Prof. Willmanns was only thirty-two years of age.

In the course of a few weeks a festival will be held in the city of Liége, to celebrate the fortieth year of the professorship of Theodore Schwann, the author of the cell-theory. To some of our readers it will be a startling piece of intelligence that the founder of modern histology is actually at this moment alive, and teaching as Professor of Physiology in the Belgian University. The committee charged with the management of the celebration desire the co-operation of scientific bodies and of individuals in this country. We are authorised to draw the attention of officials of the learned societies and other corporations to the approaching event, and to beg them to obtain some expression of sympathy with the object of the celebration—viz., the doing homage to the genius of Theodore Schwann. It is requested that letters intended to be read at the celebration may be forwarded either direct to the secretary, Prof. Edouard van Beneden, Liége, or to Mr. Ray Lankester, Exeter College, Oxford. All Englishmen of science who have specially occupied themselves in the field of work opened up by Schwann, are begged to communicate individually with either of the above-named gentlemen, and to forward their photographs for insertion in an album which is to be presented to the founder of the cell-theory.

M. Raoul Pictet, at Geneva, in consideration of the importance of his discoveries with regard to the liquefaction of gases, has had the honorary title of Doctor of Medicine conferred upon him by the University of Jena.

It was stated at the last meeting of the Royal Dublin Society that a new explosive agent has been discovered by Prof. Emerson Reynolds, in the Laboratory of Trinity College, Dublin. It is a mixture of 75 per cent. of chlorate of potassium with 25 per cent. of a body called sulphurea. It is a white powder, which is very easily prepared by the mixture of the materials in the above-named proportions. The new powder can be ignited at a rather lower temperature than ordinary gunpowder, while the effects it produces are even more remarkable than those caused by the usual mixture. Dr. Reynolds states that his powder leaves only 45 per cent. of solid residue, whereas common gunpowder leaves about 57 per cent. It had been used with success in small cannon, but its discoverer considered that its chief use would be for blasting, for shells, for torpedoes and for similar purposes. Dr. Reynolds pointed out that one of the advantages this powder possesses is that it can be produced at a moment's notice by a comparatively rough mixture of the materials, which can be stored and carried without risk so long as they are separate. The sulphurea, the chief component of the new explosive, was discovered by Dr. Reynolds about ten years ago, and could be easily procured in large quantities from a product of gas manufacture which is at present wasted.

The annual meeting in London of the Iron and Steel Institute commenced yesterday, and will be continued to-day and to-morrow. Discussions will take place on papers read at the Newcastle meeting, and several papers will be read on subjects of technical interest.

The great forge of Creusot has just despatched for an Italian ironclad two steel plates, weighing respectively 23,000 and 31,000 kilogrammes. They required a special railway train constructed for the purpose. The recent experiments at Spezia show that vessels protected by these plates are absolutely imperforable by any missiles so far known.

The rare phenomenon of St. Elmo's fire was observed at several localities in the Harz Mountains during the past month. At Blankenburg it occurred at a temperature of + 0°·5 C. and pressure of 721·5 mm., after a series of storms. The air was so laden with electricity, that canes held aloft emitted from their points light blue flames five inches in length and three in breadth. In Döblitz the phenomenon occurred in the midst of a storm, half snow and half rain, when the ends of the branches in an entire grove were surmounted by flames from four to five inches in length.

A theory of the chemical action of light recently propounded by M. Chastaing is controverted by M. Vogel (in the reports of the German Chemical Society), who cites various facts to show that rays of any kind are capable of producing either an oxidising or a reducing action on inorganic substances, according to the nature of the substance by which they are absorbed; there is no ground for attributing to the less refrangible rays in all cases an oxidising, and to the more refrangible a reducing, power. M. Chastaing's second proposition, that light has an oxidising action on organic substances, which is strongest in the violet and weakest in the red, is also opposed by M. Vogel.

Cape Colony, New Guinea, the Australian Colonies, the South Seas, and, it would appear, almost every known portion of the southern hemisphere, have been suffering from a severe and protracted drought. Shade temperatures of 124° and 127° are reported from the interior of Australia, the heat being much less intense near the coast, owing to the strong sea-breezes which prevail in connection with the great heat of the interior. Sheep, cattle, horses, and the wild animals of these regions are dying off in thousands. In Cape Colony, in particular, complete ruin has overtaken large numbers of the settlers, many of the homes of hitherto well-to-do colonists having been broken up, and the several members gone into menial service in exchange for the barest necessaries of life. We have received several letters on this subject already, and shall be glad if our readers in the regions named will favour us with any information of which they may be in possession, suggesting or disproving the cyclical character of these droughts.

A Paris correspondent sends us the following:—On March 15 a parricide was guillotined at Evreux (Eure), and a fraternity for burying the dead existing in the place, the body was not, as usual, thrown into a large basket and sent hurriedly to its grave. An ordinary coffin was prepared, and as soon as the execution was completed the corpse was laid in it. To the horror of the spectators the body was seen to be agitated by spasms so powerful that it almost jumped twice out of the coffin, and it was necessary to use force in order to control its motions. These contractions were, of course, unaccompanied by consciousness.

In connection with the lamentable catastrophe to the *Eurydice* Sir George Airy sends to the *Daily News* some valuable information as to the meteorological condition on Sunday:—On Sunday, March 24, between 1h. 30m. and 3h. 0m., the wind, which had previously been almost imperceptible, had four times risen to a pressure of $1\frac{1}{2}$ lb. per square foot; but from 3h. 0m. to about 3h. 55m. it was nearly calm, the pressure scarcely exceeding $\frac{1}{4}$ lb. per square foot. During the former of these two periods the direction of the wind had been fluctuating on both sides of west, but during the latter it was for the most part west-south-west. At 3h. 56m. nearly the direction changed very suddenly to north-north-west, and the force changed with most unusual suddenness to 4 lb., from which it rose at 4h. 3m. to 9 lb. per square foot. It declined for a time, but rose at 4h. 40m. to 10 lb. It fell and rose once more, and finally sank at 5h. 30m. to almost perfect calm. The fluctuations of the barometer were very inconsiderable. At 2h. 30m. it stood at 29·35 inches; at 3h. 56m. it was 29·28; and at 5h. 30m. was again 29·33. The temperature about 2h. 0m. had been as high as 49°, diminishing with fluctuations (probably produced by clouds) to 45° just before the squall. With the squall it sank most rapidly to 38°, and continued to fall, till at 5h. 0m. it was about 32°."

From an inquiry on the electromotive force and internal resistance of some thermopiles, those of Noë, and of Clamond, modified by Koch, M. Beetz concludes (*Ann. der Phys.*, No. 1) that the latter, from its great solidity, is preferable for technical purposes. That it requires to be heated long before use is of little consequence, and once in action, it works on with great constancy, both as regards electromotive force and resistance. Though, with an equal number of elements, the electromotive force is under that of the Noë pile, its utility is not less, as the elements can be easily increased. Only the burner must be improved in construction. On the other hand, the Noë pile offers the great advantage for laboratory purposes, that (by coupling several cylindrical piles) a productive current-source is readily obtained, with very constant electromotive force; the duration has been considerably improved in the new construction.

According to *La Nature* the telephone is finding great favour in Spain; a goodly number are being produced in Barcelona, and numerous applications made of them. Telephonic chambers are being constructed designed to isolate the hearer from external noises and render communication more easy and sure. These chambers are of small size and have glass windows for light; the doors are closed with pads of caoutchouc. Telephony was lately tried between Barcelona and Saragossa, which are about 364 kilometres apart. The communication was satisfactory at the former place (notwithstanding bad weather); at Saragossa it was somewhat imperfect, which is accounted for by the telephonic chamber having been used at one place but not at the other.

As the latest instance of collections of personal contributions to scientific literature, we notice the appearance in Paris of a handsome volume containing Prof. Kuhlmann's various researches during the past half-century. The work affords not only an interesting glimpse into the lines of investigation followed out by a single mind, but also into the general progress of applied chemistry since 1830; for there is probably no chemist alive who has done more for the practical application of his science than this Lille professor. The present volume contains detailed accounts of the baryta industry, which he created, of the general introduction of crystallisation into technical operations, of the phenomena accompanying the use of cements and the formation of stone, as well as the minute studies on the formation of nitrates and artificial manures, on the crystallisation of insoluble bodies, on the madder dyes, as well as a great variety of other technical and purely scientific subjects. Prof. Kuhlmann is now in his seventy-fifth year, but is still able to contribute occasionally the results of new investigations.

Under the editorship of Heinrich and Gerhard Rohlfs, assisted by a numerous staff, Hirschfeld, of Leipzig, is publishing a new quarterly journal under the title *Deutches Archiv für Geschichte der Medizin und medizinische Geographie.*

The French Academy has published the seventh edition of its "Dictionnaire de la Langue Française." Scientific terms have not been admitted into the general vocabulary except such as are now in common use and cannot be ignored even by unscientific persons.

Mr. Stab, corresponding member of the Society of Arts, at Smyrna, reports that the plague of field-mice, or rats, has again broken loose, and that they are wasting the fields far and wide, digging up the seed-corn, and devouring all they can. This is the plague from which Homer records that Apollo Smynthius delivered the Greeks. As the Smynthian Apollo no longer has believers, Mr. Stab wishes to know what remedy can be recommended. The western states of America suffer much from this pest.

Dr. A. B. Meyer, of the Royal Zoological Museum, Dresden, writes, in answer to Mr. Boulger's inquiry (vol. xvii. p. 392), that the reason why Mr. W. W. Wood did not send specimens of Navicula (Nature, vol. xii. p. 514) is, that he died a short time after he wrote that letter. Dr. Meyer heard this from a Manila friend.

A Botanical Exchange Society has been established at Buda-Pesth for the purpose of exchanging specimens of the native plants of Hungary, Transylvania, Croatia, Sclavonia, and, as far as possible, of Turkey and Russia, for those of other parts of the world. During the last two years upwards of 300 botanists have joined the Association, and more than 120,000 specimens have been distributed. All communications and applications for further information should be addressed to Herr Richter Lajos, Erzherzogin Marie Valerie Gasse, Nro. 1, Buda-Pesth, Hungary, accompanied by a subscription of 4 marks, or 5 francs, for which sum an exchange of 100 specimens will be effected.

A lecture will be delivered in the Theatre of the Royal Engineer Institute, Chatham, at five P.M., on April 3, by Prof. Huxley, F.R.S., on "The Geographical Distribution of Animals; and on Collecting and Observing in Aid of the Investigation of the Problems connected therewith."

Electric lights are becoming very common in Paris. The Lontain system is now working daily at the Lyons railway terminus at the expense of the Company. M. Jamin has published an elaborate article on the subject in the last number of the *Revue des Deux Mondes.*

The telephonic signal invented by MM. Henry Brothers was exhibited at a lecture delivered at Montrouge under the auspices of the Paris municipal authorities. One apparatus was placed at the Mansion House and another at the Public School, at a distance of 500 metres. When each apparatus was used as a signal giver and connected with an ordinary telephone as receiver an air played at one end of the line could be heard by the whole audience at the other end. The Henry signal is constructed to work with a dry element, and requires no other wires than those of the telephone.

The *Midland Naturalist* continues to keep up the promise of its first number. No. 3, for March, has the first part of a lecture by Dr. Cobbold on the Parasites of Man, and among other interesting papers we may note those of Mr. Robert Garner on Edward Forbes and his Country, and the Ray and Palæontographical Societies: An Appeal, by Mr. W. R. Hughes.

Photographic Rays of Light is the somewhat unhandy title of a new photographic quarterly published in Baltimore, U.S.A. The contents are varied, and the journal seems likely to prove useful to photographers. The first number contains a photographic plate, "A Study in Artistic Photography."

In the February session of the Berlin Anthropologische Gesellschaft, Dr. Rahl-Rückhard delivered an elaborate address on the anthropology and ethnology of South Tyrol, a subject which has hitherto been untouched. This region has been swept over by so many tidal waves of invasion that the character of the original inhabitants has hitherto been entirely unknown. In order to solve the problem a large collection of skulls was obtained from an ancient charnel-house at Meran, and submitted to careful measurements. The results showed that they belonged to two sharply-defined classes. The first, a brachycephalic type, was evidently identical with that of the ancient Rhætians who formed the aboriginal population at the advent of the Teutonic tribes. The second variety, an orthocephalic type with dolichocephalic tendencies, cannot easily be classified. It is, however, certain that it does not coincide with the cranial type of the ancient Helvetians in the neighbouring parts of Switzerland.

At the workshops of the Michigan Central Railway at Jackson, Michigan, an interesting experiment was recently made, in order to ascertain the very shortest time in which a locomotive engine could be mounted ready for use from the finished component parts. Up to the present this work had been generally done by about five or six workmen in the space of from nine to fourteen days. When the fact became known that a Mr. Stewart of Jackson had done the work with fourteen workmen in twenty-five hours, and a Mr. Edington, with the same number of workmen, in 16⅓ hours, a bet between these two gentlemen was the result; and before a number of spectators they eventually both proceeded to mount a locomotive engine, each being assisted by fourteen workmen, and having all the parts of which the engine consists ready at hand. They accomplished the task in the remarkably short period of two hours and fifty-five minutes. The bet was won by Mr. Edington, who finished one minute sooner than his antagonist.

The additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus erythræus*) from India, presented by Mrs. Baxter; a Green Monkey (*Cercopithecus callitrichus*) from West Africa, a Vervet Monkey (*Cercopithecus lalandii*) from South Africa, presented by Mr. Jas. Bennett; a Malayan Bear (*Ursus malayanus*) from Malacca, presented by Mr. S. Palmer; a Short-toed Eagle (*Circaetus gallicus*), South European, presented by Mr. H. M. Upcher; a Savigny's Eagle Owl (*Bubo escalaphus*) from Persia, presented by Dr. J. Huntly; two Reindeer (*Rangifer tarandus*) from Lapland, deposited; a Beccari's Cassowary (*Casuarius beccarii*) from South-East New Guinea, a Plantain Squirrel (*Sciurus plantani*) from Java, a Spotted Eagle Owl (*Bubo maculosus*) from South Africa, a One-streaked Hawk (*Melierax monogrammicus*) from West Africa, two Matamata Terrapins (*Chelys matamata*) from the Upper Amazons, an Anaconda (*Eunectes murinus*) from South America, received in exchange.

MIMICRY IN BIRDS

We have received two interesting contributions to this subject. One is contained in *The New Moon*, or Crichton Royal Institution Literary Register for November, 1873, being the observation on a starling by Dr. Crichton, the Medical Superintendent.

"Two or three years ago," he states, "in accordance with our principle of encouraging birds to become denizens of the grounds, we put up a few boxes for starlings. One of these was placed on the window sill of the writer's bedroom. Two years ago one of these birds took possession of the aforesaid box. Every morning, for two or three hours, he perched himself on an iron railing, erected to protect flowers, within two feet of the window, and there executed a comic medley with all the precision and effect of a finished *artiste*. The attention of the writer was first called to this extraordinary performance by having his window every morning surrounded by what appeared to be a general assembly of the whole tribe of *Aves*, wild and tame. The quacking of the duck, the screech of the lapwing, the eerie notes of the moorland plover, and many others, were imitated with a precision worthy of Mimos himself. He failed, however, to secure a mate for that year. Last year he was more successful. He revisited in spring his former cottage, and brought a mate with him. The usual family arrangements were made with the greatest care and despatch, when, in due time, a brood of young linguists made their appearance. During the hatching season our linguistic friend, every morning at dawn, resumed his perch within three feet of my bed, and for two or three hours, he repeated his extraordinary performance. The birds imitated always with the greatest precision are the hen, duck, goose, lapwing, plover, heron, and gull. The song or whistle of many small birds are also imitated. The only human note imitated is the whistle of the boy. This is frequently heard. It always begins on the same pitch, and passes downward through a major third, forming a beautiful musical curve. He is gradually adding to his vocabulary. During twelve months he has certainly added the cry of the heron, the gabble of the goose, and the cackle of the hen.

Mr. H. O. Forbes sends us the following instance:—

In the grounds of a friend in the neighbourhood of London, a colony of starlings had for many years built their nests in the trees in boxes placed here and there for their accommodation. The children of the house—all quite young then—a few years ago—at whose presence the birds showed not the slightest alarm, were constantly playing about close to the nests, and of course constantly calling each other by name. There was only one girl in the family, called *Maggie*, and as she was a great pet, perhaps her name was oftener mentioned than those of the others. Be that as it may, her father was one day greatly astonished by hearing his daughter's name pronounced in exact imitation of the voice of one of her brothers, whom he knew could not be near. For a moment he was puzzled, but close at hand, on the bough of an acacia tree, he detected the mocking-bird—a common starling—in the act of deception, which he continued to practice often afterwards.

AMERICAN SCIENCE

The comparison of the intensities of light of different colours has long been considered one of the most difficult of photometric problems. In the February number of the *American Journal of Science and Arts* Mr. Rood describes a simple method of making this comparison. The luminosity of cardboard painted with vermilion, *e.g.*, was determined thus:—A disc of the cardboard is attached to the axis of a rotation apparatus, and smaller discs of black and white (in sectors) are fixed on the same axis, so that by varying the relative proportions of black and white a series of grays can be produced at will. The compound black and white disc is first arranged to give a gray decidedly darker than the vermilion; this tint is now gradually lightened till the observer becomes doubtful as to the relative luminosities of the red and gray discs; the angle of the white sector is then measured. Next a gray decidedly *more* luminous than the vermilion is compared with it, and diminished in brightness till the observer again becomes doubtful, when a second measurement is taken. (The manipulation is done by an assistant without the experimenter knowing the exact black and white discs chosen.) From a number of such experiments a mean is obtained, which (it is proved) expresses the luminosity very correctly.